

AMENDMENTS TO THE CLAIMS

1-12. (Cancelled)

13. (Currently Amended) A circuit for driving a coil-armature device, comprising:

a first switch configured to selectively activate the circuit;

a second switch, responsive to a control signal, that causes a driving voltage source to periodically energize the coil-armature device according to one of a first duty cycle and a second duty cycle; and

an analog switch, disposed between a voltage divider circuit and a comparator, responsive to a change mode signal, that causes a transition from said first duty cycle to said second duty cycle.

14. (Original) The circuit according to claim 13, wherein said second switch is a transistor.

15. (Original) The circuit according to claim 13, wherein:

said second switch is configured to periodically energize the coil-armature device according to said first duty cycle for a determined period of time sufficient to move the armature to a center of the coil, and

said second switch is configured to periodically energize the coil-armature device according to said second duty cycle subsequent to said period of time sufficient to move the armature to the center of the coil.

16. (Original) The circuit according to claim 13, further comprising a first comparator configured to generate said control signal in response to a comparison between a voltage signal indicative of an amount of energy stored in said coil-armature device and a first reference signal.

17. (Original) The circuit of claim 16, wherein said voltage signal indicative of an amount of energy stored in said coil-armature device is generated across a resistor connected in series with the coil-armature device.

18. (Original) The circuit of claim 16, wherein:

said first reference signal has a first voltage level during a time period sufficient to move the armature to a center of the coil, and

said first reference signal has a second voltage level subsequent to said time period sufficient to move the armature to the center of the coil.

19. (Original) The circuit of claim 16, wherein said first reference signal is generated from a voltage divider circuit.

20. (Previously Presented) The circuit of claim 19, wherein said voltage divider circuit is adjustable so as to be able to change said first reference signal in response to a said circuit mode signal.

21. (Previously Presented) The circuit of claim 19, wherein said voltage divider comprises a plurality of resistors, and wherein at least one of the resistors is configured to be electrically shorted from said voltage divider in response to a said circuit mode signal.

22. (Original) The circuit of claim 21, further comprising a second comparator that compares a second input signal to a second reference signal to generate said circuit mode signal.

23. (Original) The circuit of claim 22, wherein said second input signal is generated based on a voltage level across a capacitor.

24. (Original) The circuit of claim 23, wherein said capacitor is sized so that said second input signal exceeds said second reference signal after a determined time sufficient to move the armature to a center of the coil has elapsed.

25. (Original) The circuit of claim 22, wherein said second input signal is configured to exceed said second reference signal after a determined time sufficient to move the armature to a center of the coil has elapsed.

26. (Original) The circuit according to claim 16, further comprising a relay positioned between said first comparator and said second switch.

27– 34. (Canceled)

35. (Previously Presented) The circuit according to claim 16, further comprising a feedback capacitor connected in parallel to said first comparator and configured to prevent the interference of random oscillations generated by the operation of said first comparator.

36. (Previously Presented) A circuit for driving a coil-armature device, comprising:
a first switch configured to selectively activate the circuit;
a second switch, responsive to a control signal, that causes a driving voltage source to periodically energize the coil-armature device according to one of a first duty cycle and a second duty cycle;

an analog switch, responsive to a change mode signal, that causes a transition from said first duty cycle to said second duty cycle; and

a first comparator configured to generate said control signal in response to a comparison between a voltage signal indicative of an amount of energy stored in said coil-armature device and a first reference signal;

wherein said first reference signal is generated from a voltage divider circuit;

wherein said voltage divider comprises a plurality of resistors; and

wherein at least one of the resistors is configured to be electrically shorted from said voltage divider in response to the closure of said analog switch.